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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/583,219	05/30/2000	Kumiko Ohmori	13700-0240	5357

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EXAMINER

AZAD, ABUL K

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 02/12/2004

8

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/583,219

Applicant(s)

OHMORI ET AL.

Examiner

ABUL K. AZAD

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) 1-19, 31-49 and 61-64 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20, 29, 30, 50, 59, 60 and 65 is/are rejected.
- 7) ☒ Claim(s) 21-28 and 51-58 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.7.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. This action is in response to the communication filed on July 15, 2003.
2. Claims 1-65 are pending in this action. Applicant's election without traverse of claims 20-30, 50-60 and 65 in Paper No. 5 is acknowledged. Claims 1-19, 31-49 and 61-64 have been withdrawn from consideration.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 20, 29, 30, 50, 59, 60 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thelen et al. (US 6,526,380) in view of Yamada et al. (US 5,797,116) and Brotman et al. (US 6,236,967).

As per claim 20, Thelen teaches, "a method of speech recognition based interactive information retrieval for ascertaining and retrieving a target information of a user by determining a retrieval key entered by the user using a speech recognition processing, comprising the steps of":

"storing retrieval key candidates that constitute a number of data that cannot be processed by the speech recognition processing in a prescribed processing time as recognition target words" (col. 6, lines 12-39, teaches huge large vocabulary word

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recognition model can have recognition accuracy and long processing time), In a plurality of statistically hierarchized databases provided in a speech recognition database" (col. 6, line 66 to col. 7, line 2, teaches "the speech recognition system comprises a plurality of large vocabulary speech recognizers, each being associated with a respective, different large vocabulary recognition model"), "where lower level statistically hierarchized databases contain increasingly larger part of the retrieval key candidates such that a lowest level statistically hierarchized database contains all the retrieval key candidates" (col. 8, line 54 to col. 9, line 32, teaches speech models are categorized hierarchically lower and higher, a hierarchically lower level contains contain models from all groups);

"carrying out the speech recognition processing for the speech input with respect to all of the plurality of statistically hierarchized databases in parallel, to sequentially obtain respective recognition results indicating recognition retrieval key candidates and their recognition likelihood" (col. 7, lines 17-29, recognizers operate in parallel; and col. 7, lines 50-62, reads on "the results of the individual recognizers includes information, such as likelihood, or confidence measures, allowing the controller to select a most likely word sequence");

"selecting those recognition retrieval key candidates which have recognition likelihood that are exceeding a prescribed likelihood threshold as recognition retrieval key leading candidates, for each statistically hierarchized database for which the speech recognition processing is completed" (col. 7, lines 50-62, reads on "the results of

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the individual recognizers includes information, such as likelihood, or confidence measures, allowing the controller to select a most likely word sequence”).

Thelen teaches a dialogue system (col. 6, lines 41-45). Thelen does not explicitly teach, “requesting the user by a speech dialogue with the user to enter a speech input indicating the retrieval key”. However, Brotman teaches, “requesting the user by a speech dialogue with the user to enter a speech input indicating the retrieval key” (col. 6, lines 51-60, particularly reads on “speech recognizer prompts a user to provide speech data via mouthpiece of telephone set or the microphone of PC”). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use prompts to enter speech input as taught by Brotman by the dialogue system of Thelen because ordinary artisan would readily recognized that would provide better search result, while the system is ready to take input speech.

Thelen does not explicitly teach, “controlling a next speech dialogue with the user according to whether a prescribed condition that a number of the recognition retrieval key leading candidates is less than or equal to a prescribed number but not zero is satisfied or not”. However, Yamada teaches, “controlling a next speech dialogue with the user according to whether a prescribed condition that a number of the recognition retrieval key leading candidates is less than or equal to a prescribed number but not zero is satisfied or not” (col. 8, lines 18-54, result in step S5, the information which satisfies the request, which the user intend to obtained and a reply to the user; and since the number of spa site names is small, the spa site name is added to the acceptable vocabulary). Therefore, it would have been obvious to one of ordinary skill in

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the art the time of the invention to use Yamada's teaching of dialog control based on the search result in the invention of Thelen because Yamada teaches his invention extracting category information to which an unknown word belongs from such an unknown word, the unknown word can be more certainly reevaluated (col. 2, lines 32-35).

As per claim 29, is set forth including the limitations of claim 20. Thelen, Brotman and Yamada teach those limitations as indicated there.

Thelen further teaches, "wherein the step (a) stores the retrieval key candidates in the plurality of statistically hierarchized databases, such that an $(n + 1)$ -th level statistically hierarchized database contains a number of the retrieval key candidates that can be processed by the speech recognition processing while carrying out a speech dialogues with the user to determine the retrieval key using an n -th level statistically hierarchized database" (col. 8, line 54 to col. 9, line 32, here lower level hierarchically database and higher level hierarchically data is an $(n+1)$ th level statistically hierarchically database, when a search is conducted on any level is an n th level hierarchically database is searched to determine the retrieval key).

As per claim 30, is set forth including the limitations of claim 20. Thelen, Brotman and Yamada teach those limitations as indicated there.

Thelen further teaches, "wherein the step (a) stores the retrieval key candidates in the plurality of statistically hierarchized databases according to importance levels

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based on statistical information defined for the recognition target words, such that the recognition target words in a higher level statistically hierarchized database have relatively higher importance level than the recognition target words in a lower level statistically hierarchized database" (col. 8, line 54 to col. 9, line 32, particularly reads on "if the recognition with a specific model at a certain moment gives low results, recognition is preferably continued with at least one model hierarchically above the specific model").

As per claim 50, Thelen teaches "a speech recognition based interactive information retrieval apparatus for ascertaining and retrieving a target information of a user by determining a retrieval key entered by the user using a speech recognition processing", comprising:

"a speech recognition database having a plurality of statistically hierarchized databases configured to store retrieval key candidates that constitute a number of data that cannot be processed by the speech recognition processing in a prescribed processing time as recognition target words" (col. 6, lines 12-39, teaches huge large vocabulary word recognition model can have recognition accuracy and long processing time; and col. 6, line 66 to col. 7, line 2, teaches "the speech recognition system comprises a plurality of large vocabulary speech recognizers, each being associated with a respective, different large vocabulary recognition model"), "where lower level statistically hierarchized databases contain increasingly larger part of the retrieval key candidates such that a lowest level statistically hierarchized database contains all the

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retrieval key candidates" (col. 8, line 54 to col. 9, line 32, teaches speech models are categorized hierarchically lower and higher, a hierarchically lower level contains contain models from all groups);

"a speech recognition unit configured to carry out the speech recognition processing" (col. 7, lines 63-66, particularly reads on "a model selector is used to select for at one of the speech recognizers the associated recognition model from the M modes in dependence on a recognition context"); and

"a dialogue control unit configured to carry out speech dialogues with the user" (col. 6, lines 41-44, a dialogue system);

"the speech recognition unit carries out the speech recognition processing for the speech input with respect to all of the plurality of statistically hierarchized databases in parallel, to sequentially obtain respective recognition results indicating recognition retrieval key candidates and their recognition likelihood" (col. 7, lines 17-29, recognizers operate in parallel; and col. 7, lines 50-62, reads on "the results of the individual recognizers includes information, such as likelihood, or confidence measures, allowing the controller to select a most likely word sequence");

"the dialogue control unit selects those recognition retrieval key candidates which have recognition likelihoods that are exceeding a prescribed likelihood threshold as recognition retrieval key leading candidates for each statistically hierarchized database for which the speech recognition processing is completed" (col. 7, lines 50-62, reads on "the results of the individual recognizers includes information, such as likelihood, or confidence measures, allowing the controller to select a most likely word sequence").

Thelen does not explicitly teach, "requesting the user by a speech dialogue with the user to enter a speech input indicating the retrieval key". However, Bortman teaches, "requesting the user by a speech dialogue with the user to enter a speech input indicating the retrieval key" (col. 6, lines 51-60, particularly reads on "speech recognizer prompts a user to provide speech data via mouthpiece of telephone set or the microphone of PC"). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use prompts to enter speech input as taught by Brotman by the dialogue system of Thelen because ordinary artisan would readily recognized that would provide better search result, while the system is ready to take input speech.

Thelen does not explicitly teach, "controlling a next speech dialogue with the user according to whether a prescribed condition that a number of the recognition retrieval key leading candidates is less than or equal to a prescribed number but not zero is satisfied or not". However, Yamada teaches, "controlling a next speech dialogue with the user according to whether a prescribed condition that a number of the recognition retrieval key leading candidates is less than or equal to a prescribed number but not zero is satisfied or not" (col. 8, lines 18-54, result in step S5, the information which satisfies the request, which the user intend to obtained and a reply to the user; and since the number of spa site names is small, the spa site name is added to the acceptable vocabulary). Therefore, it would have been obvious to one of ordinary skill in the art the time of the invention to use Yamada's teaching of dialog control based on the search result in the invention of Thelen because Yamada teaches his invention

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extracting category information to which an unknown word belongs from such an unknown word, the unknown word can be more certainly reevaluated (col. 2, lines 32-35).

As per claim 59, is set forth including the limitations of claim 50. Thelen, Brotman and Yamada teach those limitations as indicated there.

Thelen further teaches, "wherein the speech recognition database stores the retrieval key candidates in the plurality of statistically hierarchized databases, such that an $(n + 1)$ -th level statistically hierarchized database contains a number of the retrieval key candidates that can be processed by the speech recognition processing while carrying out a speech dialogues with the user to determine the retrieval key using an n -th level statistically hierarchized database" (col. 8, line 54 to col. 9, line 32, here lower level hierarchically database and higher level hierarchically data is an $(n+1)$ th level statistically hierarchically database, when a search is conducted on any level is an n th level hierarchically database is searched to determine the retrieval key).

As per claim 60, is set forth including the limitations of claim 50. Thelen, Brotman and Yamada teach those limitations as indicated there.

Thelen further teaches, "wherein the speech recognition database stores the retrieval key candidates in the plurality of statistically hierarchized databases according to importance levels based on statistical information defined for the recognition target words, such that the recognition target words in a higher level statistically hierarchized

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database have relatively higher importance level than the recognition target words in a lower level statistically hierarchized database" (col. 8, line 54 to col. 9, line 32, particularly reads on "if the recognition with a specific model at a certain moment gives low results, recognition is preferably continued with at least one model hierarchically above the specific model").

As per claim 65, Thelen teaches, "a computer usable medium having computer readable program codes embodied therein for causing a computer to function as a speech recognition based interactive information retrieval system for ascertaining and retrieving a target information of a user by determining a retrieval key entered by the user using a speech recognition processing and a speech recognition database having a plurality of statistically hierarchized databases for storing retrieval key candidates that constitute a number of data that cannot be processed by the speech recognition processing in a prescribed processing time as recognition target words" (col. 9, lines 35-66, client and server computer, a suitable program loaded in the processor of the computer; col. 6, lines 12-39, teaches huge large vocabulary word recognition model can have recognition accuracy and long processing time; and col. 6, line 66 to col. 7, line 2, teaches "the speech recognition system comprises a plurality of large vocabulary speech recognizers, each being associated with a respective, different large vocabulary recognition model"), "where lower level statistically hierarchized databases contain increasingly larger part of the retrieval key candidates such that a lowest level statistically hierarchized database contains all the retrieval key candidates" (col. 8, line

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54 to col. 9, line 32, teaches speech models are categorized hierarchically lower and higher, a hierarchically lower level contains contain models from all groups), the computer readable program codes include:

“a first computer readable program code for causing said computer to carry out the speech recognition processing for the speech input with respect to all of the plurality of statistically hierarchized databases In parallel, to sequentially obtain respective recognition results indicating recognition retrieval key candidates and their recognition likelihood” (col. 9, lines 35-66, client and server computer, a suitable program loaded in the processor of the computer; col. 7, lines 17-29, recognizers operate in parallel; and col. 7, lines 50-62, reads on “the results of the individual recognizers includes information, such as likelihood, or confidence measures, allowing the controller to select a most likely word sequence”);

“a second computer readable program code for causing said computer to select those recognition retrieval key candidates which have recognition likelihoods that are exceeding a prescribed likelihood threshold as recognition retrieval key leading candidates, for each statistically hierarchized database for which the speech recognition processing is completed” (col. 7, lines 50-62, reads on “the results of the individual recognizers includes information, such as likelihood, or confidence measures, allowing the controller to select a most likely word sequence”).

Thelen does not explicitly teach, “requesting the user by a speech dialogue with the user to enter a speech input indicating the retrieval key”. However, Bortman teaches, “requesting the user by a speech dialogue with the user to enter a speech input

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indicating the retrieval key" (col. 6, lines 51-60, particularly reads on "speech recognizer prompts a user to provide speech data via mouthpiece of telephone set or the microphone of PC"). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use prompts to enter speech input as taught by Brotman by the dialogue system of Thelen because ordinary artisan would readily recognized that would provide better search result, while the system is ready to take input speech.

Thelen does not explicitly teach, "controlling a next speech dialogue with the user according to whether a prescribed condition that a number of the recognition retrieval key leading candidates is less than or equal to a prescribed number but not zero is satisfied or not". However, Yamada teaches, "controlling a next speech dialogue with the user according to whether a prescribed condition that a number of the recognition retrieval key leading candidates is less than or equal to a prescribed number but not zero is satisfied or not" (col. 8, lines 18-54, result in step S5, the information which satisfies the request, which the user intend to obtained and a reply to the user; and since the number of spa site names is small, the spa site name is added to the acceptable vocabulary). Therefore, it would have been obvious to one of ordinary skill in the art the time of the invention to use Yamada's teaching of dialog control based on the search result in the invention of Thelen because Yamada teaches his invention extracting category information to which an unknown word belongs from such an unknown word, the unknown word can be more certainly reevaluated (col. 2, lines 32-35).

Allowable Subject Matter

5. Claims 21-28 and 51-58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: as per claims 21 and 51, the prior art of record fails to show or fairly suggest claimed embodiment of specific feature, "carrying out the speech recognition processing for the another speech input to obtained another result indicating recognition related information candidates and their recognition likelihood, and adjusting the recognition result according to the another recognition result to obtained adjusted recognition result. The prior art of record fails to show or fairly suggest the claimed combination of features.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Porter (US 5,729,659), teaches method and apparatus for controlling a digital computer using oral input.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Abul K. Azad** whose telephone number is **(703) 305-3838**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richemond Dorvil**, can be reached at **(703) 305-9645**.

Any response to this action should be mailed to:

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

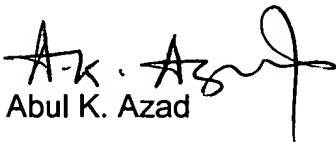
Or faxed to:

(703) 872-9314

(For informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center's Customer Service Office at telephone number **(703) 306-0377**.


Abul K. Azad

February 9, 2004